CLAIMS

1   1.   A computer-implemented method for generating a gain adjust signal to establish an

2   audio output level, comprising:

3   receiving at least one person-microphone position signal representative of a position

4   of a person relative to a microphone;

5   determining a gain adjust signal based at least in part on the person-microphone

6   position signal; and

7   using the gain adjust signal to establish the audio output level.

1   2.   The method of Claim 1, wherein the person-microphone position signal is derived from

2   a video system.

1   3.   The method of Claim 2, wherein the gain adjust signal is determined based at least

2   partially on at least one of: a distance from a person's mouth to a microphone, an orientation of a

3   person's head relative to the microphone, and a head location relative to a direction of sensitivity of

4   a microphone.

1   4.   The method of Claim 2, further comprising:

2   recording at least one calibration person-microphone position signal;

3   recording at least one calibration audio level; and

4   using the calibration signal and calibration level, generating at least one mapping.

1   5.   The method of Claim 4, further comprising using the mapping to generate at least one

2   gain adjust signal based on at least one person-microphone position signal.

1   6.   The method of Claim 1, wherein the person-microphone position signal is derived from

2   a motion sensing system or a position sensing system or an orientation sensing system or a distance

3   sensing system.

1   7.   The method of Claim 1, wherein the person-microphone position signal is derived from

2   a laser system.

1   8.   The method of Claim 1, wherein the gain adjust signal is determined

2   contemporaneously with a recording of the person.

1   9.   The method of Claim 1, wherein the person-microphone position signal is recorded,

2   then the gain adjust signal is determined after a recording of the person.

1   10.   The method of Claim 1, wherein the gain adjust signal is a fast response gain adjust

2   signal, and the method further comprises determining a slow response gain adjust signal based on an

3   audio stream.

1 11. A digital processor programmed to undertake logic for dynamically establishing a gain

2 of an audio system, the logic including:

3 receiving a video stream representative of at least one person and at least one

4 microphone;

5 deriving person-microphone position signals using the video stream; and

6 using at least some of the person-microphone position signals, generating audio gain

7 adjust signals for input thereof to the audio system.

1 12. The digital processor of Claim 11, wherein the logic further includes determining an

2 audio gain adjust signal based at least partially on: a distance from a person's mouth to a

3 microphone, or an orientation of a person's head relative to the microphone.

1 13. The digital processor of Claim 12, wherein the logic further comprises:

2 recording at least one calibration person-microphone position signal;

3 recording at least one calibration audio level contemporaneously with the calibration

4 person-microphone position signal; and

5 using the calibration signal and calibration level, generating at least one mapping.

1 14. The digital processor of Claim 13, wherein the logic further comprises using the

2 mapping to generate at least one gain adjust signal based on at least one person-microphone position

3 signal.

1   15.   The digital processor of Claim 11, wherein the gain adjust signal is determined

2   contemporaneously with recording the person.

1   16.   The digital processor of Claim 11, wherein the person is recorded, then the gain adjust

2   signal is determined after the recording of the person.

1   17.   A computer program product including:

2   computer readable code means for receiving light reflection signals representative of

3   light reflected from a person and light reflected from a microphone;

4   computer readable code means for, based on the light reflection signals, determining

5   an orientation signal; and

6   computer readable code means for generating an audio gain adjust signal based on the

7   orientation signal.

1   18.   The computer program product of Claim 17, further comprising:

2   computer readable code means for recording at least one calibration person-

3   microphone position signal;

4   computer readable code means for recording at least calibration one audio level; and

5   computer readable code means for, using the calibration signal and calibration level,

6   generating at least one mapping.

1   19.   The computer program product of Claim 18, further comprising computer readable

2   code means for using the mapping to generate at least one gain adjust signal based on at least one

3   person-microphone position signal.

1   20.   An audio system, comprising:

2   at least one microphone electrically connected to at least one audio amplifier having

3   at least one audio gain;

4   at least one video camera; and

5   at least one processor receiving signals from the video camera and establishing the

6   audio gain in response thereto.

1   21.   The system of Claim 20, wherein the processor determines a gain adjust signal based

2   at least partially on: a distance from a person's mouth to a microphone as determined from the video

3   camera signals, or an orientation of a person's head relative to the microphone as determined from

4   the video camera signals.

1   22.   The system of Claim 20, wherein the processor records at least one calibration person-

2   microphone position signal and at least calibration one audio level, and uses the calibration signal

3   and calibration level to generate at least one mapping useful in generating the gain adjust signal.

1   23.   The system of Claim 20, further comprising a slow adjust filter using an audio stream

2   to generate a slow gain adjust signal.

1   24.   An audio system, comprising:

2   at least one microphone electrically connected to at least one audio amplifier having

3   at least one audio gain;

4   at least one source of person-microphone position signals; and

5   at least one processor receiving signals from the source and establishing the audio gain

6   in response thereto.

1   25.   The system of Claim 24, wherein the source is a video camera.

1   26.   The system of Claim 24, wherein the source is a motion sensing system of a laser

2   system or a position sensing system or an orientation sensing system or a distance sensing system.

1   27.   The system of Claim 24, further comprising a slow adjust filter using an audio stream

2   to generate a slow gain adjust signal.

1   28.   The method of Claim 1, wherein the gain adjust signal is determined by selecting one

2   of several microphone outputs based on head position.

1   29.   The system of Claim 24, wherein the source is an illumination-based pupil detector

2   or a face detector.